Honors Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 6: Exponential/Logarithmic Functions Review Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block\_\_\_

Given the following conditions, describe the exponential function (growth, decay, bounded growth, bounded decay) and then sketch the general shape of the function.

1.  2. 

3. State whether each of the given functions represents exponential growth, decay, bounded growth, or bounded decay.

A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ D.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Match the graph with the correct function.



A. 

B. 

C. 

D. 

E. None of these

5. State the domain and range of :

Find the inverse of each function.

|  |  |
| --- | --- |
| 6.  | 7.  |
| 8.  | 9.  |

Verify that  and  are inverses **using composite functions**.

|  |  |
| --- | --- |
| 10.  | 11.  |
| 12.  | 13.  |

14. Graph the function using transformations and provide the requested information.

*x*

*y*

 ****

a. Starting Points (0, a) and (1,ab)

b. Horizontal asymptote: Write equation and sketch

c. General shape of function

d. Domain \_\_\_\_\_\_\_\_\_\_ Range\_\_\_\_\_\_\_\_\_\_

e. End behavior ****

f. *x*-int:\_\_\_\_\_\_\_\_ *y*-int:\_\_\_\_\_\_\_\_\_\_

g. Interval(s) of increase or decrease

15. Graph the function using transformation and provide the requested information.

*x*

*y*

 ****

a. Starting Points (0, a) and (1,ab)

b. Horizontal asymptote: Write equation and sketch

c. General shape of function

d. Domain \_\_\_\_\_\_\_\_\_\_ Range\_\_\_\_\_\_\_\_\_\_

e. End behavior****

f. *x*-int:\_\_\_\_\_\_\_\_ *y*-int:\_\_\_\_\_\_\_\_\_\_

g. Interval(s) of increase or decrease

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rewrite each equation in exponential form.

|  |  |
| --- | --- |
| 16.)  | 17)  |

Rewrite each equation in logarithmic form.

|  |  |
| --- | --- |
| 18.)  | 19.)  |

Evaluate. Round any decimal answers to the hundredths place.

|  |  |  |
| --- | --- | --- |
| 20.)  | 21.)  | 22.)  |

Expand the logarithm.

|  |  |
| --- | --- |
| 23.)  | 24.)  |

Condense the logarithm.

|  |  |
| --- | --- |
| 25.)  | 26.)  |

Rewrite using the change of base formula.

|  |  |
| --- | --- |
| 27.)  | 28.)  |

Solve. Round your answer to the hundredths place if necessary.

|  |  |
| --- | --- |
| 29.)  | 30.)  |
| 31.)  | 32.)  |
| 33.)  | 34.) |
| 35.)  | 36.)  |
| 37.)  | 38.)  |

Determine the inverse.

|  |  |
| --- | --- |
| 39.)  | 40.)  |
| 41.)  | 42.)  |

Graph the function. Then identify the characteristics.

|  |  |
| --- | --- |
| 43.)  | 44.)  |
| Domain: \_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_x-intercept: \_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_ Asymptote: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ End Behavior: Interval of Increase or Decrease: \_\_\_\_\_\_\_\_\_ | Domain: \_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_x-intercept: \_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_ Asymptote: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ End Behavior: Interval of Increase or Decrease: \_\_\_\_\_\_\_\_\_ |

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| 45.) Suppose that $ 12000 is invested at 6% compounded quarterly. a. What will the investment be worth after 5 years? b. How much interest has been earned in the first 5 years?46.) You bought a guitar 6 years ago for $400, and its value is decreasing by 13% per  year. How much is your guitar worth now (present time)?47.) Your grandparents opened a college savings account for you on the day you were born. They  found an investment that pays 8% annual interest, compounded monthly. How  much money did they need to invest in order to have $40,000 in the account on your 18th birthday? 48.) Find the interest on $2500 when invested at 4.8% annual interest compounded monthly for an eight year period.49.) A colony of algae increases in size by 15% each week. If 10 grams of algae are placed in a lake, find the weight of the algae that will be present in the lake after 12 weeks. 50.) Maryville was founded in 1950. At that time, 500 people lived in the town. The population growth in Maryville follows the equation $y =500+1.5^{t}$, where t is the number of years since 1950.  A. Determine when the population had doubled since the founding.  B. In what year was the population predicted to reach 25,000 people?51.) Tanisha has $100 to invest at 8% per year in an account that is compounded continuously.  A. How long will it be before she has $150? B. What rate would Tanisha need to invest her money in order to make $300 in 7 years? |